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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,506	08/28/2003	Daniel T. Mudd	12252-0011	2200

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EXAMINER

KRISHNAMURTHY, RAMESH

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/652,506

Applicant(s)

MUDD ET AL.

Examiner

Ramesh Krishnamurthy

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3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 - 19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

This office action is responsive to communications filed 12/08/2003.

**Claims 1 – 19 are pending.**

1. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows: the provisional application upon which priority is claimed has a different inventorship. See MPEP § 201.11(IV.).

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the claimed "thermal sensor" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of

the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13 – 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation “the pressure sensor” in line 4. It is not clear as to which pressure sensor is being referenced here since the corresponding limitation at line 2 reads “one or more pressure sensors”, rendering the claim confusing.

Claim 13 recites the limitation “a more incremental pressure per unit of flow” at line 5. It is not clear as to the reference configuration that is being implied here with respect to which the claimed device is recited to have “a more incremental pressure per unit of flow”.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 – 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Loan et al. (US 5,868,159) or Balazy et al. (US 6,152,162) or White et al. (WO 02/25391).

Loan et al. discloses a mass flow controller, comprising: a body portion having a first internal passage (12) and at least second internal passage (30,32) formed therein; a flow control valve (18) coupled to the body portion and in communication with the first and second internal passages; at least one pressure transducer (40,42) coupled to the body portion and in communication with at least one of the first internal passage and the second internal passage; a nonlinear flow restrictor (20) configured to produce a high compressible laminar flow therethrough coupled to the second internal passage; a thermal sensor (38) in communication with at least one of the first internal passage, the second internal passage, and the flow restrictor; and an exhaust vessel (6) in communication with the flow restrictor. It is noted that the exhaust vessel (6) being a vacuum deposition chamber is inherently configured to be under a variety of pressures. Also the restrictor (20) is taken here to include all known restrictors including those made of sintered metal with a porous structure as well as those selected from the group consisting of capillary tubes, annular gaps, annular plates, parallel plates, grooved plates, stacked plates, coiled capillary bodies, and coiled sheets. Also since the pressures upstream and downstream of the restrictor could span a range of values, the device disclosed by Loan et al. is configured to deliver a flow such that the pressure

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drop across the restrictor is 50% of the pressure at the restrictor inlet. Figure 1 shows the restrictor to be clearly non-linear.

Balazy et al. discloses a mass flow controller, comprising: a body portion having a first internal passage (26b) and at least second internal passage (26a) formed therein; a flow control valve (34) coupled to the body portion and in communication with the first and second internal passages; at least one pressure transducer (14,16) coupled to the body portion and in communication with at least one of the first internal passage and the second internal passage; a nonlinear flow restrictor (28) configured to produce a high compressible laminar flow therethrough coupled to the second internal passage; a thermal sensor (considered inherent to the system of Balazy et al. and included in "the other process data" mentioned at Col. 9, lines 44 – 45) in communication with at least one of the first internal passage, the second internal passage, and the flow restrictor; and an exhaust vessel (6) in communication with the flow restrictor. It is noted that the exhaust vessel (connected to outlet (24)) in a semi-conductor manufacturing facility (see col. 1) is a vacuum deposition chamber that is inherently configured to be under a variety of pressures. Also the restrictor (28) is taken here (see col. 10, lines 14 – 21) to include all known restrictors including those made of sintered metal with a porous structure as well as those selected from the group consisting of capillary tubes, annular gaps, annular plates, parallel plates, grooved plates, stacked plates, coiled capillary bodies, and coiled sheets. Also since the pressures upstream and downstream of the restrictor could span a range of values, the device disclosed by Balazy et al. is

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configured to deliver a flow such that the pressure drop across the restrictor is 50% of the pressure at the restrictor inlet. Figure 2 shows the restrictor to be clearly non-linear.

White et al. (WO 02/25391) discloses a mass flow controller, comprising: a body portion having a first internal passage (42) and at least second internal passage (44) formed therein; a flow control valve (40) coupled to the body portion and in communication with the first and second internal passages; at least one pressure transducer (46,48) coupled to the body portion and in communication with at least one of the first internal passage and the second internal passage; a nonlinear flow restrictor (56) configured to produce a high compressible laminar flow therethrough coupled to the second internal passage; a thermal sensor (78) in communication with at least one of the first internal passage, the second internal passage, and the flow restrictor; and an exhaust vessel (36) in communication with the flow restrictor. It is noted that the exhaust vessel (36) being a vacuum deposition chamber is inherently configured to be under a variety of pressures. Also the restrictor (56) is taken here to include all known restrictors including those made of sintered metal with a porous structure as well as those selected from the group consisting of capillary tubes, annular gaps, annular plates, parallel plates, grooved plates, stacked plates, coiled capillary bodies, and coiled sheets. Also since the pressures upstream and downstream of the restrictor could span a range of values, the device disclosed by in WO 02/25391 is configured to deliver a flow such that the pressure drop across the restrictor is 50% of the pressure at the restrictor inlet. Figure 4 shows the restrictor to be clearly non-linear.

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7. It is noted that the rejection of the pending claims under 35 U.S.C. 102(b) as being anticipated by White et al., as set forth above, is applicable since the priority claim under 35 U.S.C. 119(e) is currently being denied. However, in the eventuality of such a priority claim being perfected, the rejection over the White et al. (WO 02/25391) would be replaced with a corresponding rejection under 35 U.S.C. 102(e) over the related U.S. patent (US 6,539,968) as well as an additional rejection under 35 U.S.C. 102(a) over the WIPO publication WO 02/25391.

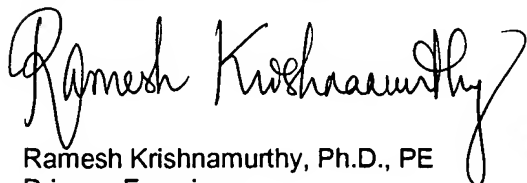
8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramesh Krishnamurthy whose telephone number is (571) 272 - 4914. The examiner can normally be reached on Monday - Friday from 10:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene L. Mancene, can be reached on (571) 272 - 4930. The fax phone number for the organization where this application or proceeding is assigned is (703) 872 - 9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0861.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ramesh Krishnamurthy, Ph.D., PE  
Primary Examiner  
Art Unit 3753

**RAMESH KIRSHNAMURTHY**  
**PRIMARY EXAMINER**



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